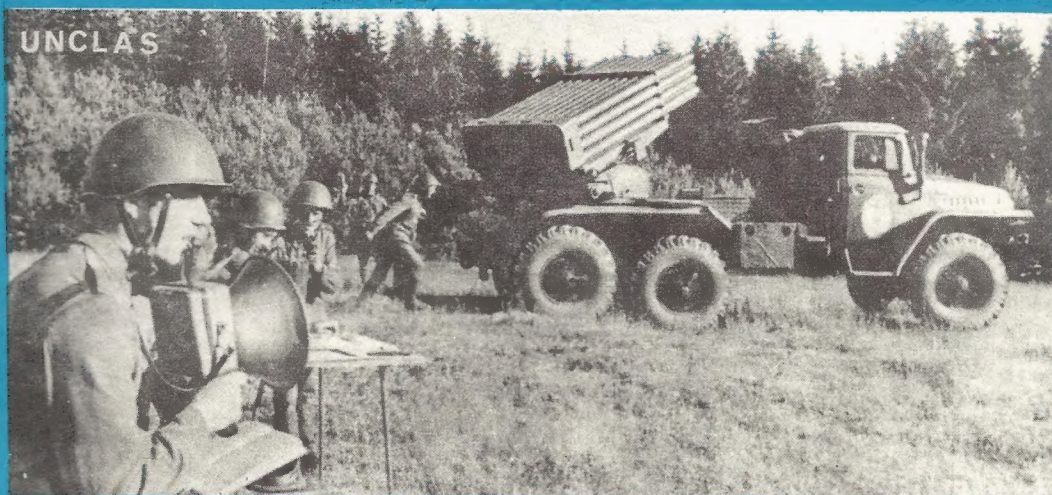


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ARMY TECHNICAL INTELLIGENCE REVIEW



Nº101

April 1972

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(Sgd) H MAGUIRE
Director General

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ARMY TECHNICAL INTELLIGENCE REVIEW No. 101

APRIL 1972

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Cover picture: 122 mm Rocket Launcher (40 Rounds) BM-21

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ARMY TECHNICAL INTELLIGENCE REVIEW No. 101

FOREWORD

In this issue I would like to draw your attention to the article on Airborne Artillery. This is a field in which the Soviets have considerable expertise and is well worth study.

There are further staff changes to report. Major Martin Fausset after four years behind the GW desk departed in January for Castlewood House, where he will devote his energies to BLOWPIPE in future. His place was taken by Major Mike Borrett fresh from the GW Course at Shrivenham. Another old inhabitant, Major Richard Smyth, has also departed. He decided to become a civilian. His place was taken by Major David Linaker who joined us from FVA. Major David Corsellis after two years co-ordinating has left for Hong Kong to command a Gurkha Engineer Squadron. Major Claude Smith coming from STRATCO now sits in his place.

Finally, our Australian member, Major Bill Titley took over the Inf/Airborne desk from Major Brian Faris who departed for the Infantry Trials and Development Unit at Warminster in March.



S C SMITH
Colonel
Tech Int (A)

1. Artillery of the Soviet Airborne Division

In the last edition of the ATIR we covered Soviet field guns, anti-tank guns and multiple rocket launchers of the Front, Army, Tank Division and Motor Rifle Division artillery organisations. In this article we now turn our attention to the artillery of the Soviet airborne division.

The bold use of airborne forces is emphasised by the Soviets in their high speed offensive operations. They believe that the success of a parachute operation depends to a large extent on adequate fire support to provide air defence and neutralisation of the enemy (particularly his tanks) in the area of the drop zone. Much of this support is provided by air strikes and by missiles and artillery of advancing ground forces. However, the airborne division like other Soviet formations requires its own artillery weapons to provide air defence, indirect fire and anti-armour support. Some of these artillery weapons are in common with the motor rifle and tank divisions. But, because of the peculiarity of airborne operations, most are either exclusive to the airborne division or special adaptations for this use.

Divisional Artillery

The 122 mm howitzer D-30 (Figure 1) and the 57 mm anti-aircraft gun S-60 (Figure 2) are found in the airborne division artillery. These are also standard in the motor rifle and tank divisions. The use of these two weapons in the airborne division is not surprising as both excel in their primary function and also have a good anti-armour capability.

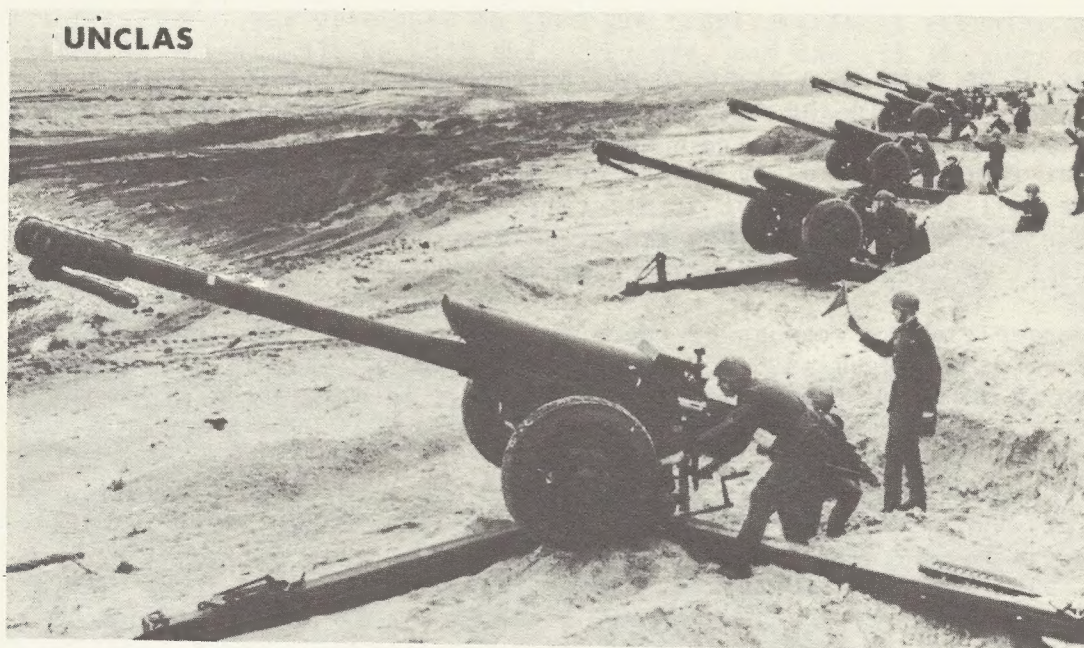


Fig 1. 122 mm Howitzer D-30

The D-30 (see also page 4 of ATIR 100 dated October 1971) is the Soviet's latest howitzer and provides indirect fire support for the division out to 15,300 m with its 22 kg (48 lb) high explosive shell. With a 6 to 8 rounds per minute rate of fire per gun, the battalion of 18 guns can rapidly place a large quantity of rounds on any target. This rate of fire also pays dividends in its anti-tank capability. Having 360° traverse enables full anti-tank coverage out to 800 m with its HEAT round that is capable of 460 mm of armour penetration.

Artillery of the Soviet Airborne Division (Cont'd)

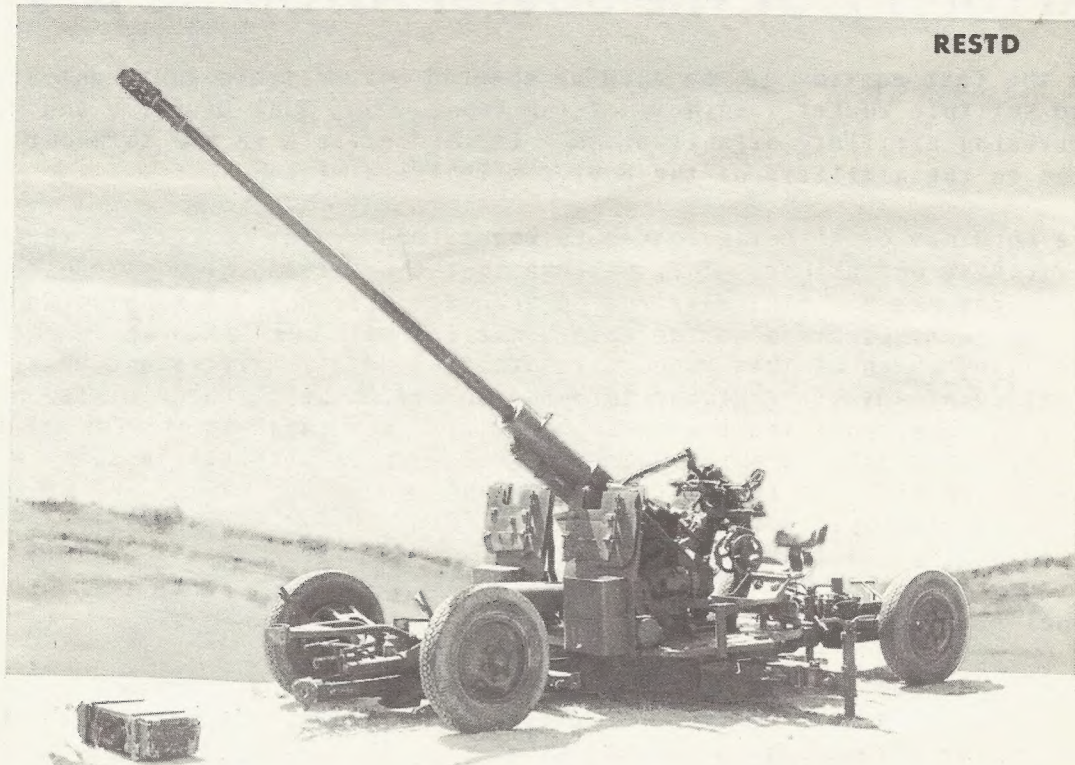


Fig 2. 57 mm Anti-Aircraft Gun S-60

The 57 mm S-60 is a standard air defence gun in the Soviet arsenal. There are 18 to be found in the anti-aircraft battalion of the airborne divisional artillery. The S-60 fires a 2.8 kg (6.2 lb) high explosive shell at a practical rate of fire of 60 rounds per minute. It can be used with either on-carriage optical fire control or off-carriage radar/optical fire control to effective slant ranges of 4,000 and 6,000 m respectively. This gun also has a useful anti-APC performance out to approximately 1100 m with its AP-T round.

To complete the weapons of the airborne divisional artillery, there are 18 x 85 mm assault guns ASU-85 organised into an ASU battalion, and there are 18 x 140 mm towed multiple rocket launchers (16 round M 1965) organised into a multiple rocket launcher battalion.

The ASU-85 (Figure 3) is a full tracked armoured vehicle mounting an 85 mm gun to provide anti-tank and limited indirect fire support. It has full active infra-red equipment for a good night capability and has all round crew protection against small arms and shell fragments. It has a rate of fire of 3-4 rounds per minute with both high explosive and armour piercing rounds. It is primarily an anti-armour weapon with effective fire range of 1150 m with the HVAP (arrow-head) shell which will penetrate 130 mm of armour at 1,000 m at normal. It also has a 7.62 mm co-axially mounted machine gun for local protection. Currently the ASU-85 is not air droppable but only air landed, and although it is not amphibious, the full tracked chassis provides good battle-field mobility.

Artillery of the Soviet Airborne Division (Cont'd)



Fig 3. 85 mm Airborne Assault Gun ASU-85

Great use is made of rockets in the tank and motor rifle divisions, and the airborne division follows a similar policy. The 140 mm towed multiple rocket launcher (Figure 4) was developed to meet the requirements of airborne forces. It is light in weight, 416 kg (915 lbs) unloaded, and has its 16 tubes mounted on a modified gun carriage to allow easy movement by either man handling or small vehicle. It fires the 39.6 kg (87 lb) 140 mm rocket that was standard with the motor rifle division for many years to give a maximum range coverage of 10,000 m.



Fig 4. 140 mm Rocket Launcher (16 Round) M-1965

Artillery of the Soviet Airborne Division (Cont'd)

Parachute Regiment Artillery

Following the policy for the regiments of the motor rifle division, the parachute regiments of the airborne division also have their own artillery to provide air defence, anti-tank and indirect fire support.

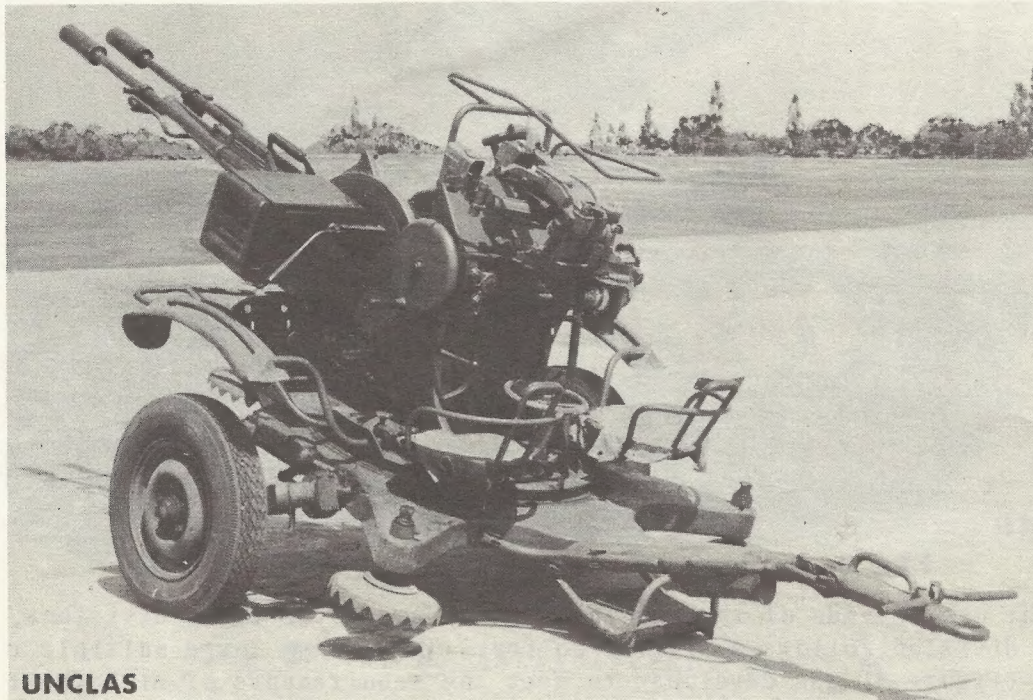


Fig 5. 23 mm Anti-Aircraft Gun ZU-23

The 23 mm anti-aircraft gun ZU-23 (Figure 5) is the latest towed anti-aircraft gun introduced by the Soviets, and there are 6 of these twin barrelled weapons in each of the three parachute regiments. It has an effective slant range of 2,000 m and can put about 33 rounds in the air each second. It fires both HEI-T and API-T ammunition having a projectile weight of about 190 grams (0.4 lb) each. The API-T round provides an anti-APC capability.

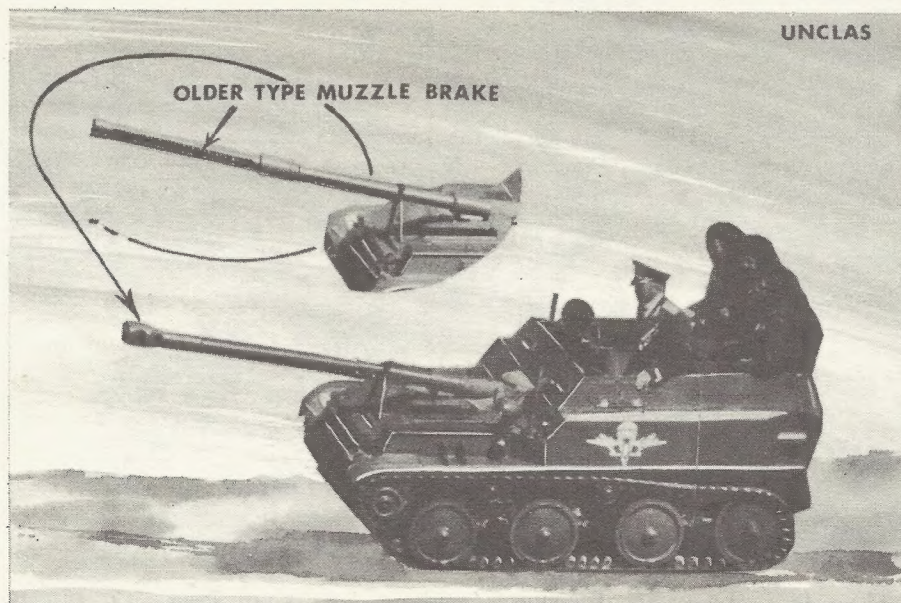


Fig 6. 57 mm Airborne Assault Gun ASU-57

Artillery of the Soviet Airborne Division (Cont'd)

The regiments have been provided with a mobile anti-armour capability in the form of 9 air droppable 57 mm assault gun ASU-57 (Figure 6) per regiment. The ASU-57 uses an adaptation of the old 57 mm anti-tank gun to give comparable performance. It has an effective direct fire range of 1250 m, and the HVAP shell will penetrate 140 mm of armour at 500 m at normal. It has been seen with two different muzzle brakes. The early one had a multislotted brake with 34 slots per side while the later one uses a more conventional double baffle design. The ASU-57 is capable of limited HE fire support with its small 2.8 kg (6.2 lb) shell and very limited gun elevation. It is light in weight and therefore air droppable, but crew protection suffers as a result. Only minimal protection is given by the sides, and there is no overhead protection at all.

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Fig 7. 85 mm Auxillary Propelled Anti-Tank Gun SD-44

To give the parachute regiments a better anti-tank and indirect fire capability and still have an air droppable equipment, the Soviets have added an auxiliary propulsion unit to their 85 mm field gun. The resulting equipment is known as the 85 mm auxiliary propelled anti-tank gun SD-44 (Figure 7). The auxiliary propulsion allows the SD-44 to make short moves under its own power. 6 of these guns are found in each of the three regiments. Also the use of the 85 mm gun gives comparable performance to the ASU-85 but with a rate of fire increased to 10 to 15 rounds per minute.

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In order to load and unload tanks, the ferry requires 1.2 metres of water. Ramps will accommodate banks ranging from 1.2 metres below water level to 0.5 metres above. When fully loaded, propellers mounted in the carrier give the ferry a speed in the water of 7.5 km/hr. (Fig 4).

1.	Weight:	34,000 kg
2.	Load capacity:	52,000 kg
3.	Crew:	6 men
4.	Length:	12 metres
5.	Width (Outside of pontoons):	12.6 metres
6.	Speeds - water - loaded:	7.5 km/hr
	unloaded:	11 km/hr
	- land (max):	40 km/hr

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Heavy Amphibious Ferry - GSP (Cont'd)

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Fig 2. Unfolding the Pontoons



Fig 3. Pontoons almost in launch position



Fig 4. Completed Ferry (Loading a T-55 Tank)

3. CSEPEL Vehicles and the Hungarian People's Army

Like most of the Warsaw Pact armies the Hungarian People's Army (HPA) uses large amounts of Soviet weapons and equipment. This is true in the field of motor transport. Soviet trucks, particularly ZIL and GAZ are in evidence as well as Soviet tracked artillery tractors and East German vehicles. However, as in some other Pact countries notably, Poland, Germany and Czechoslovakia, the growth since the end of World War II of the Hungarian motor industry has brought an increased desire and ability to meet military needs from home resources. Redevelopment and expansion of the Hungarian motor industry over the past 7 years has established it as the most progressive and modern of any in East Europe. In 1971 it ranked sixth in the world as a producer of buses and coaches and has attained standards of design and technical competence comparable with those of the industry in the West. The industry is based on the CSEPEL and the IKARUS Works in the Budapest area and the RABA-Marag Works at Gyor. It is the CSEPEL Works which produce virtually all the vehicles of Hungarian origin in the Hungarian People's Army. In the period 1950 to 1955, CSEPEL was basically an assembly plant for vehicle parts produced elsewhere. In 1955 and up to about 1964, CSEPEL produced its own vehicles but in the medium class only. Since 1964 the factory has expanded and re-orientated production to include the 7-14 T class of vehicle. CSEPEL truck production is now about 3,500 vehicles per year. The following vehicles are not intended to be a comprehensive summary of all CSEPEL truck production, but they are intended to indicate the vehicles in service in the Hungarian People's Army at the present and those likely to enter service in the future.

CSEPEL Vehicles and the HPA (Cont'd)

CSEPEL K800 - Light Tracked Artillery Tractor

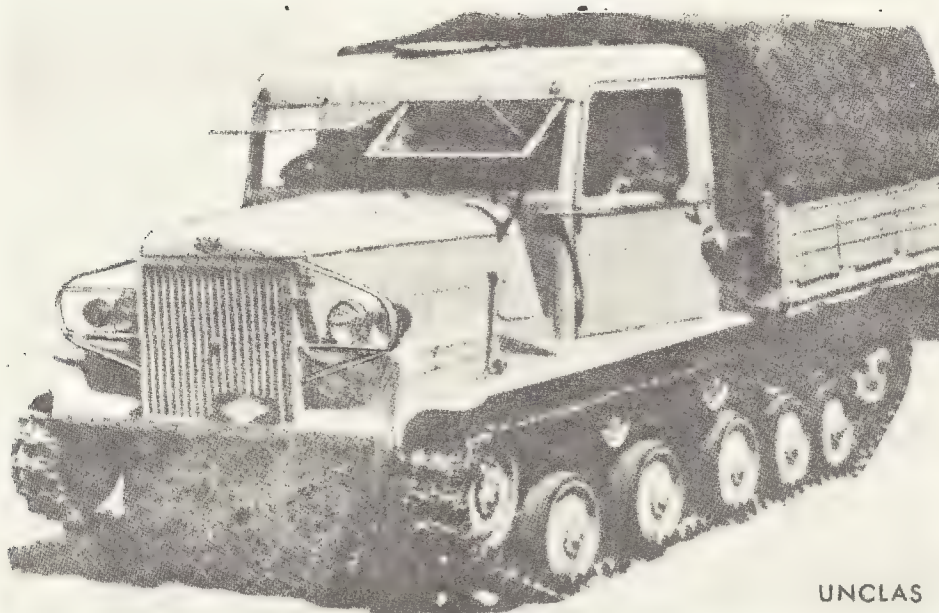


Fig 1. CSEPEL K800

The CSEPEL K800 is a Hungarian designed and produced version of a now obsolete Soviet Light tracked artillery tractor (M-2). In the Hungarian People's Army the K800 was used to tow a variety of artillery pieces but the current trend in the Warsaw Pact towards greater use of wheeled vehicles as gun tractors, has been reflected in the HPA and the K800 is now seen less in this role. The Soviet ATP and ATS artillery tractors have also been seen in service with the HPA.

Technical Characteristics - CSEPEL K800

Payload	1,796 kg
Towed load	8,000 kg
Maximum speed	35 km/hr
Cruising range	300 km
Dimensions (Length x width x height)	5,000 x 2,400 x 2,200 mm
Weight (unladen)	6,385 kg
Engine	125 HP 6 cylinder (in line) diesel

CSEPEL Vehicles in the HPA (Cont'd)

CSEPEL D344 4 x 4 3T Truck

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Fig 2. CSEPEL D344

The CSEPEL D344 truck went into production in 1964 and production is believed to have ended in 1970. It is very widely used in the HPA and appears to be their basic vehicle, although Soviet and East German trucks are also used. It differs from most all-wheel drive trucks in the Warsaw Pact countries in that it has dual rear wheels. It is seen as a medium general cargo carrier and as the chassis for box bodied vehicles and fuel tank trucks. In engine power it equates approximately to the Soviet ZIL 157 which is also in service with the HPA but is being replaced in Soviet Forces by the ZIL-131 which has a better overall performance. Its payload on made-up roads is not as great as the 4.5 T ZIL-157 but across country its payload is better by 500 kg.

Technical Characteristics - CSEPEL D344

Payload - cross country	3,000 kg
on roads	3,500 kg
Towed load	2,000 kg
Maximum speed	82 km/hr
Cruising range	530 km
Dimensions (length x width x height)	6,716 x 2,560 x 2,430 mm
Weight (unladen)	4,500 kg
Engine	100 HP 4 cylinder diesel

CSEPEL Vehicles in the HPA (Cont'd)**CSEPEL D350 4 x 2 3½T Truck**

The CSEPEL D350 truck was in production from 1950 to 1956. It is still in service with the HPA as a medium cargo and a dumper truck and as a fuel tank truck. The CSEPEL D350 is a licenced copy of the Austrian Steyr Diesel 3½T truck which formed the basis for all further post-war truck development in Hungary after 1945. A later version, the D352, has similar characteristics to the D350 but a body style similar to the D420. This D352 model appeared as a tipper in limited numbers only.

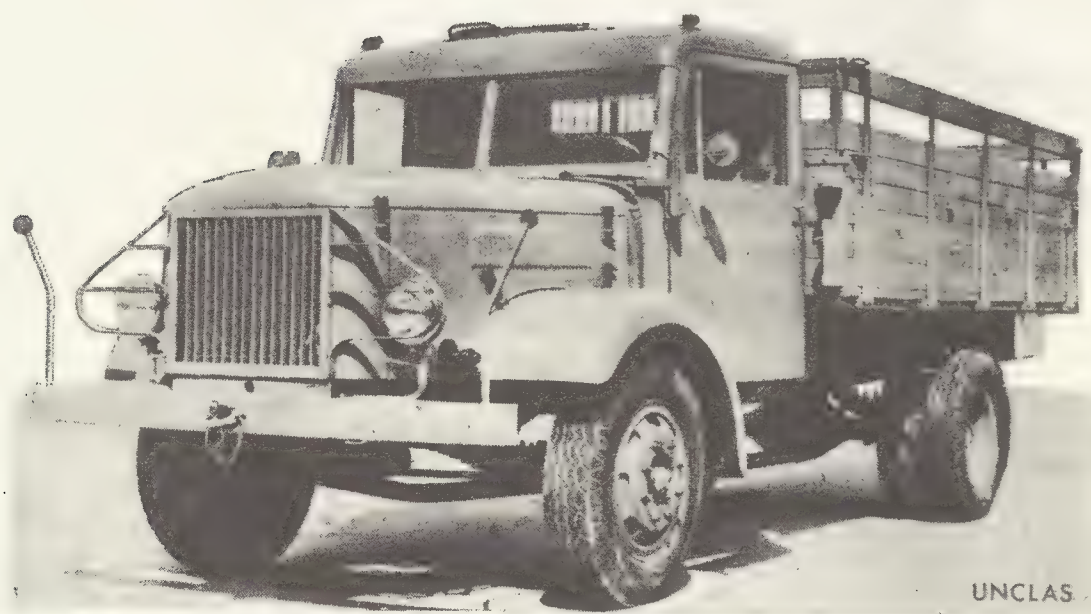


Fig 3. CSEPEL D350

Technical Characteristics

Payload - on roads	3,500 kg
Towed load	3,500 kg
Maximum speed	75 km/hr
Cruising Range	400 kms approx
Dimensions (length x width x height)	6,800 x 2,200 x 2,130 mm
Weight (unladen)	3,700 kg
Engine	85 HP 4 cylinder diesel

CSEPEL Vehicles in the HPA (Cont'd)

CSEPEL D420 4 x 2 4½T and D450 4 x 2 5T Trucks
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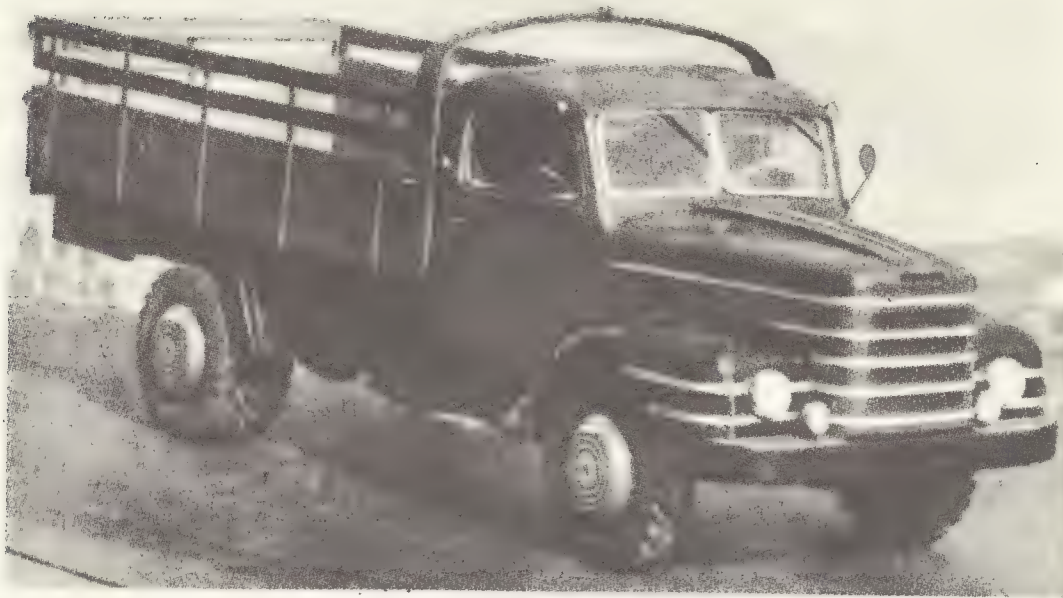
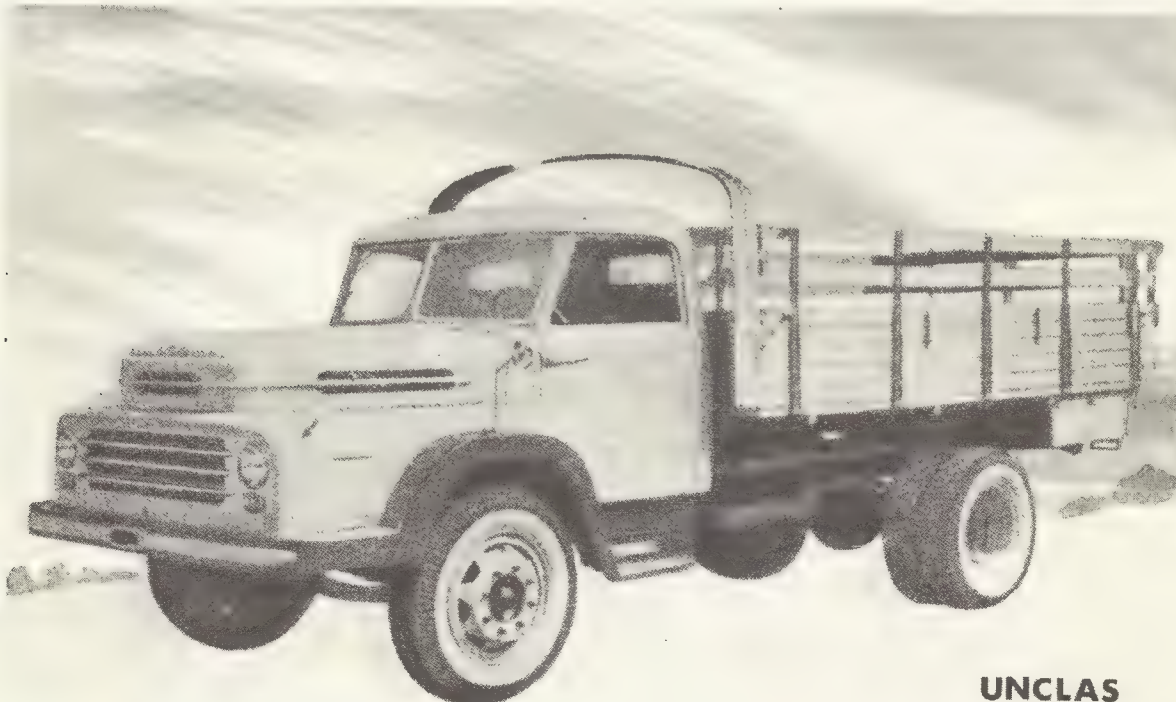


Fig 4. CSEPEL D420

The CSEPEL D420 was produced from 1956 until about 1965, since when it has been replaced by the D450 which started production in 1958. The D420 was an enlarged and improved version of the CSEPEL D350 and the D450 carries on this trend, having a more powerful engine and greater payload than the D420. Tractor, dumper truck and box bodied versions of both vehicles are in use.



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Fig 5. CSEPEL D450

CSEPEL Vehicles in the HPA (Cont'd)

Technical Characteristics

	CSEPEL D420	CSEPEL D450
Payload	4,500 kg	5,000 kg
Towed load	5,000 kg	5,000 kg
Dimensions		
Length	6,710 mm	6,733 mm
Width	2,310 mm	2,370 mm
Height	2,280 mm	2,200 mm
Weight (unladen)	3,800 kg	4,100 kg
Engine	85 HP 4 cylinder diesel	95 HP 4 cylinder diesel

CSEPEL D700 Series

The CSEPEL D700 series of heavy trucks started in production in 1956 with the D700 7T truck. This vehicle went out of production in 1960. In the same year a tractor version the D705N started production and is currently still being produced. This vehicle had its original 145 HP engine replaced by a 170 HP engine in 1967. It is in service with the HPA as a tractor for semi-trailers. In 1961 the D710 truck was produced with a 145 HP diesel engine and a chassis capacity of 9500 kg. This chassis was also used as the basis for a series of specialised bodies. The D710 is believed to have gone out of production in 1966. A tipper version, the D711 went into production in 1964. This was intended principally for the civilian construction industry. A D717 15T, all-wheel drive truck, started production, it is believed, in 1965 but is not thought to be used by the HPA. Cargo, tipper, tanker, and special body versions have been produced. A 20T prime mover version of the D717, termed the D720 went into production in 1965 also. Vehicles of the CSEPEL D700 series are illustrated below and on page 17.

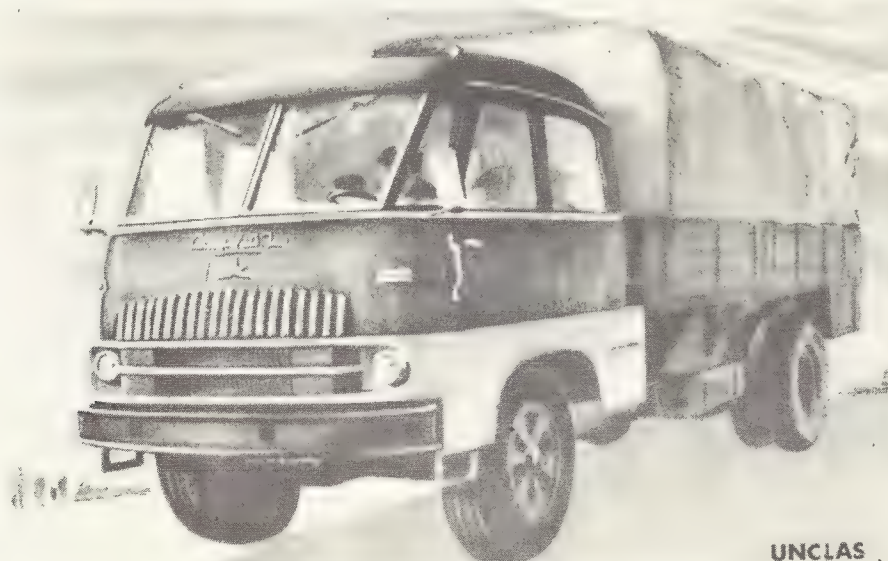


Fig 6. CSEPEL D700

CSEPEL Vehicles in the HPA (Cont'd)

CSEPEL D700 Series

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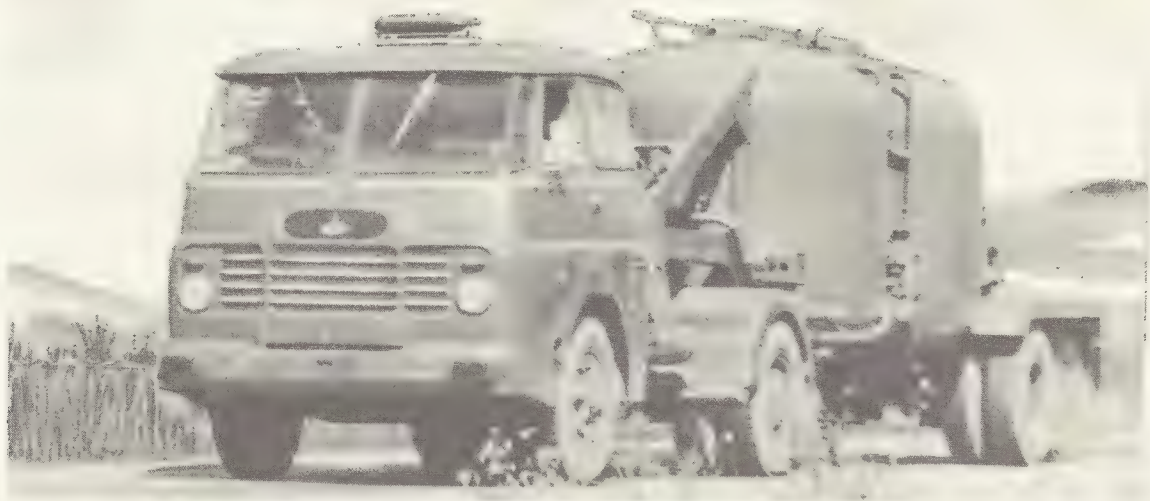


Fig 7. CSEPEL D705N

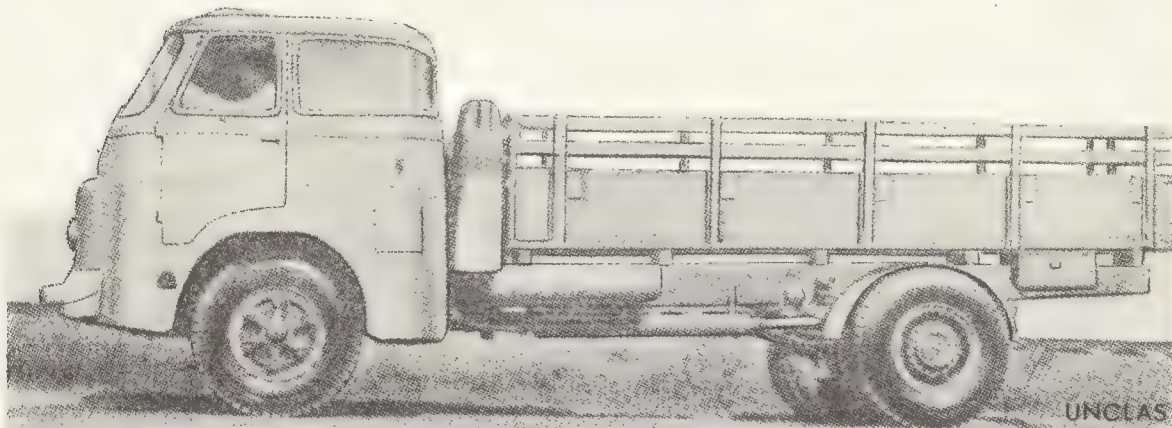


Fig 8. CSEPEL D710

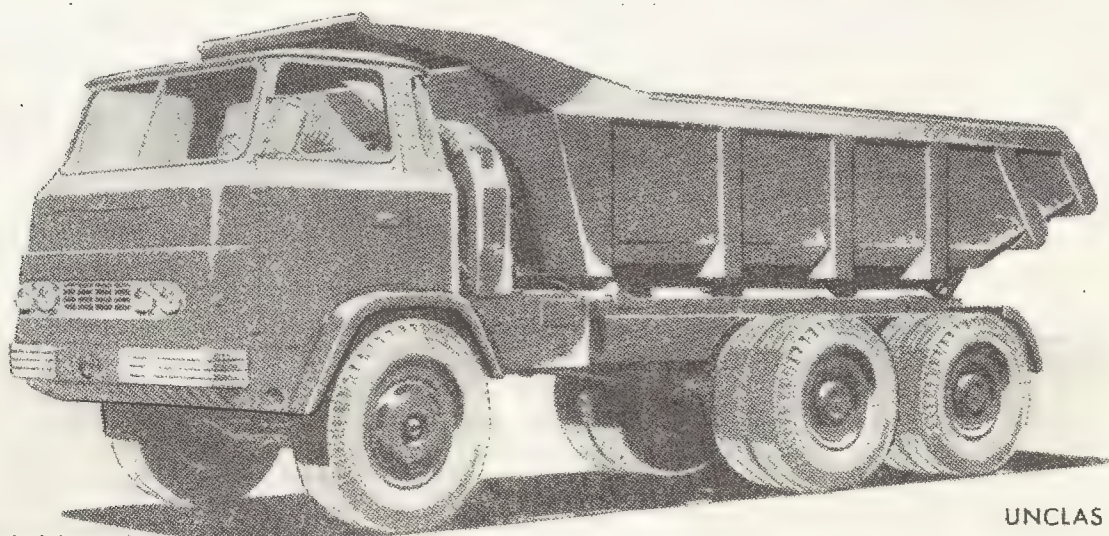


Fig 9. CSEPEL D717 (Tipper)

CSEPEL Vehicles in the HPA (Cont' d)

New and Future CSEPEL Trucks

Starting in 1969 CSEPEL has produced several new vehicles and more are planned. Some of these could well appear in service with the HPA. In particular, this might apply to the CSEPEL D452 4 x 2 5/6T truck first produced in 1969, and the CSEPEL D566 6 x 6 5T truck, production of which is claimed to have started in 1970. These two vehicles are illustrated below. Other new models include a D462 4 x 2 6/7T truck with a companion four-wheel drive model, the D464, both models having started production in 1969. A CSEPEL D455 4 x 4 4.8T dumper truck version of the D450 truck was also produced in 1969. For the future, production of a D562 4 x 2 5T truck is planned for 1972 but is intended principally for agricultural use. A four-wheel drive tipper version of this vehicle, to be called the CSEPEL D564, is also planned for next year.

CSEPEL D452 4 x 2 5/6T Truck



Fig 10. CSEPEL D452

This vehicle was first seen in 1970 and is very similar in outward appearance to the Polish STAR 28/29. The cab is, in fact, of Polish manufacture. It is based on the CSEPEL 450 and could possibly be seen as a replacement for that vehicle with the HPA. Little is known of the vehicle except that its payload is claimed to be in the 5/6T range and that it is said to have a 95 HP engine.

CSEPEL Vehicles in the HPA (Cont'd)

CSEPEL D566 6 x 6 5T Truck



Fig 11. CSEPEL D-566

Very little is known of this vehicle, the manufacture of which was to have started in 1970. It is reported to be an aluminium bodied six-wheel drive cross country vehicle powered by a 200 HP engine. It is also reported to have cab controlled tyre pressures, disc brakes, and torsion bar suspension. Such a vehicle would have an obvious military application and, it is reasonable to expect to see it in service with the HPA in the near future.

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4. Foreign Army Equipment Quiz

Another selection of teasers for you.

We have moved away from the USSR in some instances to make it more difficult for our specialists. Some of the photographs have more than one equipment to identify; where this is the case a number in parenthesis is given.



Fig 1. Press the button
and retire (2)

UNCLAS

Fig 2. 'OLD BILL' would
have loved one of
these

UNCLAS



UNCLAS



Fig 3. Once upon a time!

UNCLAS



Fig 4. Can you name it? 'You could easily be wrong'.

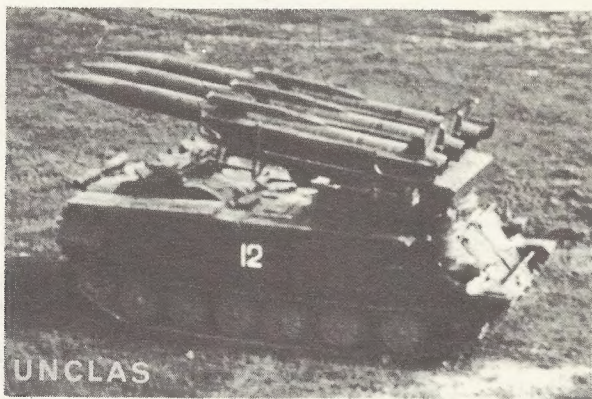


Fig 5. Rather large for November the 5th!

Fig 6. We thought they had better Naval weapons! (2)





Fig 7.

Down in the Forest
something stirred!

Fig 8.

Once more into the breach

Fig 9. This one may
'Bog you down'!



RESTD





Fig 10. Engineer Plant - or is it?



Fig 11. If you can speak the 'lingo' there's a clue on the front!

FOREIGN ARMY EQUIPMENT QUIZ

Answers

1. BM-21 and AKM Rifle
2. MDK-2M Tracked Rotary Trencher
3. CHICOM APC M-1967
4. CZECH PMS and T-55 Tanks
5. SA-6
6. D-44 in K-61
7. BMP
8. SPG-9
9. ZSU-23-4
10. R-404 Mast
11. GAZ-66